



STEPH PARKYN

GERMANIUM

Element Symbol: **Ge**

Atomic Number: **32**

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Germanium is a lustrous, hard, greyish-white metalloid in the carbon group, chemically similar to its group neighbours tin and silicon. In 1869, Dmitri Mendeleev, the father of the periodic table, predicted its existence and some of its properties based on its position on his periodic table and called the element eka-silicon. In 1886, chemist Clemens Winkler isolated a new element from a new mineral, argyrodite. The properties of the new element fitted well with Mendeleev's earlier predictions. Winkler named the new element germanium (from the Latin word, Germania, for Germany) in honour of his homeland. Winkler is also credited with inventing the three-way stopcock. He allegedly had a passion for poetry and played several musical instruments. His discovery of Germanium solidified Dmitri Mendeleev's theory of periodicity.

During the Second World War small amounts of germanium had begun to be used in some special electronic devices, mostly diodes. However, germanium did not become economically significant until after 1945, when its properties as a semiconductor were recognized as being very useful in electronics. In 1948, the development of the germanium transistor saw the application of germanium in all manner of solid state electronics. With the increasing availability of high-purity silicon, the use of germanium in transistors, diodes, and rectifiers declined over the 1970's.

Today, there is still high demand for germanium for use in fiber optics communication networks, infrared night vision systems, and polymerization catalysts. These end uses represented 85% of worldwide germanium consumption in 2000. Worldwide production in 2006 was roughly 100 tonnes of germanium. In 2007 35% of the demand was met by recycled germanium.

Germanium has gained popularity in recent years for its reputed ability to improve immune system function in cancer patients. Interestingly, the Mars Exploration Rovers and several satellites rely on germanium solar cells. Germanium dioxide is also used as a polymerization catalyst in the production of polyethylene terephthalate (PET); giving rise to a wide range of PET bottles and containers.

Provided by the element sponsor Phillips Ormonde Fitzpatrick

ARTISTS DESCRIPTION

Today Germanium is mainly used for fibre optic communication networks and infrared night vision systems. These super powers – the ability to speak around the word with a single click and to see in the dark as though it were light – inspired this comic book tribute to Germanium. Linocut and chine-colle.

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